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June 1987

The Naval Aviation Safety Review

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V.32 #8

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FLIGHT DECK LSE

Captain Stan Dunlap, the Naval Safety Center's director of Aviation Safety retires on June 26 after a long and distinguished career in naval aviation. A long-time proponent of a dynamic managerial approach to loss control management, he has been assigned to more safety related billets than any other officer in the United States Navy. During his 30 years of service he has qualified in 36 different aircraft, serving 10 tours in fighter, reconnaissance and training squadrons. Additionally, he served as assistant navigator of USS *Constellation* (CV 64); safety officer of USS *America* (CV 66); twice as safety officer on the staff of Commander, Naval Air Force, U.S. Atlantic Fleet; and twice as Director of Aviation Safety at the Naval Safety Center.

Approach salutes Captain Dunlap for his unsurpassed and outstanding devotion to aviation safety. Fair winds and following seas.

Sharon Hewitt, Navy News

Dedicated, expert, professional and outspoken are words that describe the ideal aviation safety officer. They are words that describe Captain Stan Dunlap, who has indeed been the Navy's ideal aviation safety officer for the past two decades. His style, his method, his effort, his sincerity have been key ingredients in the steady decrease of the all-Navy aircraft accident rate; or as Captain Dunlap would have it, in the improvement of loss control management.

Widely recognized as the Navy's number one loss control management expert, Stan Dunlap is about to shed his uniform, the uniform he has worn for the last 30 years. As he does, he leaves a legacy of excellence and tenacity that will be hard to match. He is sometimes loud, often demanding, but always on the mark, insisting upon frankness and honesty in everything: in planning, in training, in maintenance, in operations and in mishap investigation alike. The results are in the record books. He will be sorely missed.

But his very departure leaves us a tremendous challenge. Without his prodding, without his frankness and honesty, we must depend more on other safety officers, on leaders of every stripe, to do what he has done. That's the way we'll continue to improve; that's the way we'll say to Stan, "Well done."

Vice Admiral Robert F. Dunn
Deputy Chief of Naval Operations
(Air Warfare) OP-05

inside approach

Vol. 32 No. 8

UH-1N by Capt. Bob Jones, USN Ret. Capt. Jones, former CO of the *Iwo Jima*, was kind enough to contribute this "self portrait" to Approach.

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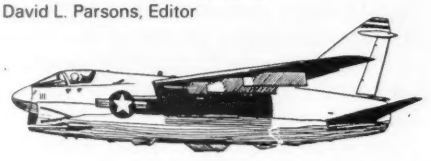


Approach is a monthly publication published by the Commander, Naval Safety Center. Address comments, contributions and questions about distribution and reprints to:

Commander, Naval Safety Center
NAS Norfolk, VA 23511-5796
Attention: Approach — Code 71

Telephone: Commercial (804) 444-7416; Autovon 564-7416; FTS 954-7416

ISSN 0570-4979. The contents should not be considered directives and may not be construed as incriminating under Art. 31 of the Uniform Code of Military Justice. Views expressed in guest-written articles are not necessarily those of the Naval Safety Center. The Secretary of the Navy has determined that this publication is necessary in the transaction of business required by law. It is funded and printed in accordance with all Navy publishing and printing regulations and approval of the Navy Publications and Printing Policy Committee. Second-class postage paid at Norfolk, Va., and additional mailing offices. Approach is available for sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.
POSTMASTER: Send address changes to APPROACH Magazine, Naval Safety Center, NAS Norfolk, VA 23511-5796.

. . . If you find yourself consistently adding power to make it to the runway, you're probably dropping the flaps too early or taking off too much power somewhere in the approach. . .

Flap-Induced Difficulty

By LCdr. James J. Miller

Graphics by Frank L. Smith

THE P-3 rolls onto final approach and an apparently normal 3-degree glide slope. All seems trimmed and stable as the plane approaches the end of the runway. About one-quarter mile from the landing zone, the pilot drops full flaps. Suddenly the aircraft balloons above glide slope, pitches nose down and slows.

One of two things happens next: Either the pilot reacts by adding power to regain airspeed and pushes the nose further down to return to glide slope (the plane is now fast and too steep), or he does nothing, and the plane remains well above a normal flare altitude, floating halfway down the runway.

Extending the flaps gives the airplane more lift per knot of airspeed so it can land at slower speeds. Typical flap deflection produces a large amount of camber (wing curvature). If a constant or near-constant angle of attack is maintained throughout flap extension, the change experienced by the pilot will primarily be an increase in lift for a given angle of attack.

The principal aerodynamic effect of the extension of flaps is to increase the maximum coefficient of lift and reduce the angle of attack for any given lift coefficient. The increase in the maximum coefficient of lift afforded by flap deflection reduces the stall speed. Flap deployment changes the pressure field around the wing as the lift increases. As a result, the center of pressure moves and a downward (negative) pitching moment is created. Induced drag is a direct result of lift. The additional lift produced by the extension of flaps increases both induced drag and form drag.

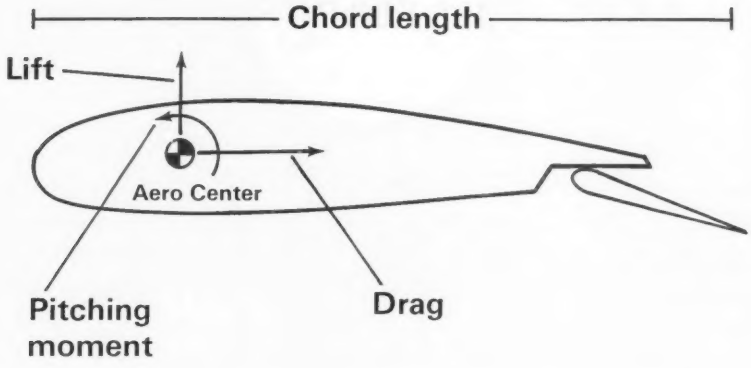
Putting it all together, the extension of flaps causes three things:

- Ballooning. The angle of attack required to produce the same lift is less, and if the angle of attack is kept constant during flap extension, lift is increased and the plane goes up.
- Pitch-over. Changes in the wing's pressure field cause an increased nose-down moment. This negative moment can be equalized by the pilot with yoke input if a constant attitude is desired.
- Slowing. The total drag increase (induced plus form) requires a higher power setting to maintain a constant airspeed and altitude.

The P-3 and C-130 have high-lift Fowler flaps. The Fowler flap is unique in that as the flap segment is moved aft along a set of tracks, the angle of flap deflection increases, such that wing chord length increases as flap angle increases (note figure 1). Unlike most other Navy aircraft, the end result is a larger

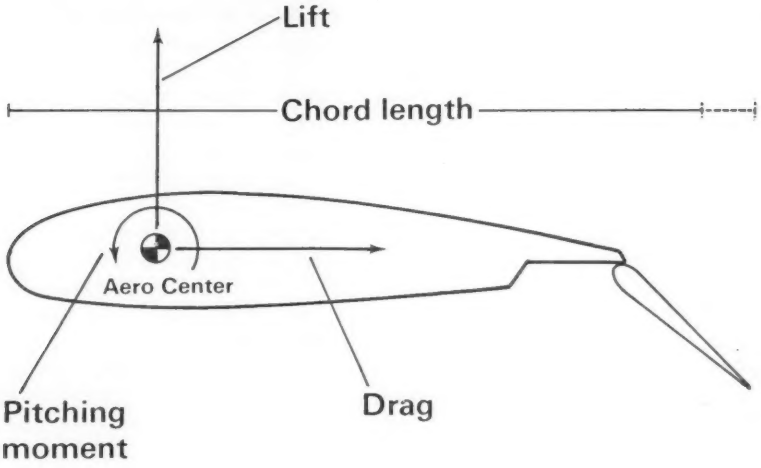
FLAP EFFECT COMPARISON

Flaps Partially Extended



Flaps at approach, 18 degrees deflection, shorter chord length, smaller lift and drag vectors, pitching moment at equilibrium with elevator trim.

Flaps Extended Full



Flaps at full, 40 degrees deflection, extended wing chord length, larger lift and drag vectors, larger pitching moment not fully countered by elevator trim.

Figure 1

Continued

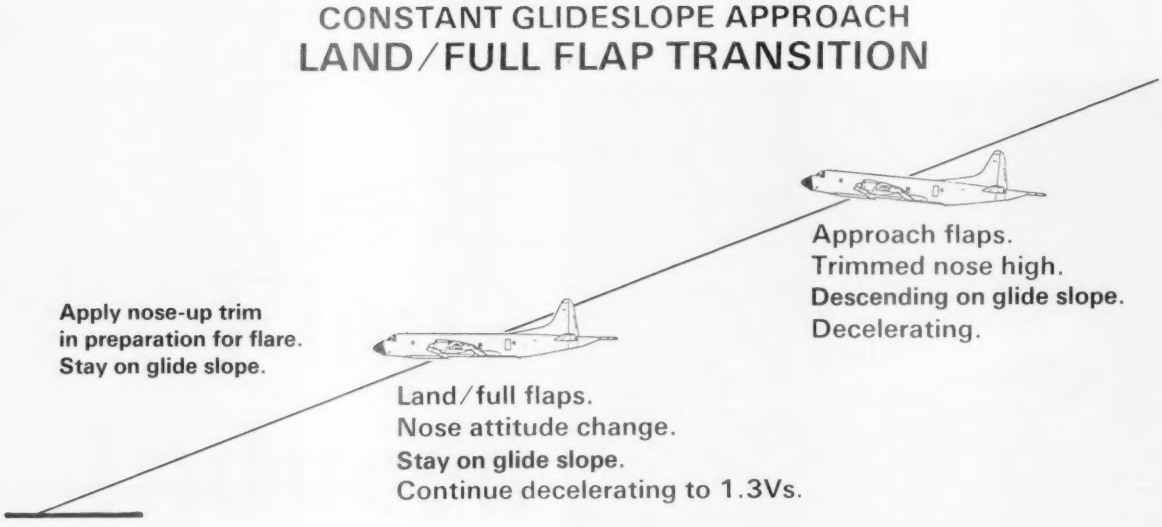


Figure 2

wing area with greatly increased camber when at full flaps.

At intermediate settings, the flaps gradually deflect downward, while at "land/full flaps" (full deployment), there is a major downward deflection. Therefore, small initial deflections of flap, 0 to 30 degrees, cause noticeable changes in lift without large increases in pitching moment or drag. Large flap deflections, 30 to 40 degrees, no longer create the same rate of lift increase but generate greater changes in drag and pitching moment. In the P-3 and C-130, the transition from approach flaps, 18 degrees, to land/full flaps, 40 degrees, causes the largest increase in camber and chord length. Therefore, the greatest increase in drag and pitching moment occurs.

The point to deploy land/full flaps on the approach should be chosen after anticipating the three aerodynamic effects of a full flap deflection. Never wait until the last minute to drop full flaps before flaring. The changes in attitude, speed and control forces, coupled with a transition to the landing flare, can be too complex for even the most seasoned pilot to deal with consistently (note figure 2).

Any aircraft equipped with Fowler flaps will slow dramatically. The flap transition point should be chosen so that no power addition is required to make it to the landing zone. Use the slowing effect of land/full flaps to continue a deceleration to the 1.3V flare speed. If you find yourself consistently adding power to make it to the runway, you're probably dropping the flaps too early or taking off too much power somewhere in the approach.

Flap deployment will cause a ballooning tendency above the desired 3-degree glide slope. A nose attitude change will be required. However, the negative pitch-over that comes with flap deployment can be used. Let the nose pitch-over assist in countering the ballooning effect as you transition to the new attitude required to stay on a 3-degree glide slope. Remember, the goal is a constant glide slope approach, not a constant attitude approach when making a land/full flap landing. Hold the glide slope all the way down to the flare transition.

Both the P-3 and C-130 communities practice adding nose-up trim after applying land/full flaps to assist the flare. It is imperative to maintain the necessary attitude to stay on the glide slope when this trim is added. Don't let the nose rise. Remember, at the time of trim application, it is adverse trim that will be used to assist later in the flare. Armed with knowledge of the involved aerodynamic principles, coupled with your seat-of-the-pants air sense, flap-induced difficulties will be minimized.

LCdr. Miller is assigned to VP 1, NAS Barbers Point, Hawaii. A graduate of the U.S. Naval Academy and the Naval Postgraduate School, he has more than 3,300 hours in P-3s and C-130s with VP 40, VP 31 and VXE 6.

No Time for Safety

By Lt. Alan D. Scott

SEVERAL days ago, the safety chief petty officer asked me if I, as NFO NATOPS officer, would like to submit an article for an upcoming Safetygram. As I sat at my desk with a stack of evals, NATOPS writeups, a JAG investigation and the thought of a 12-hour tactical flight the next morning, I thought, "There's no way I have time for this. . . "

No time for safety. When it comes down to it, that's the problem in a nutshell. Especially during a time such as the ready month, there seems to be too much going on — too much to do. It is during times like this that we really need to stop and look closely at what we're doing, both on the ground and in the air. The following are a few items that might help each of us perform a quick attitude check:

On the ground:

- **No time to drive safely**. Have you been late for a preflight lately? I know I have. So what do you do? Of course, you race down the highway at 80 mph, trying to make it on time. If you live 10 miles away, do you know how much time you save? About three minutes. Hardly worth risking your life, is it?
- **No time to double-check.** Is that gripe fixed so the flight will take off on time? Think about the details. Did I get all the tools? Did I safety-wire everything? Did I take a good look around and double-check everything?
- **No time to preflight correctly**. Have you had to switch planes in the middle of a preflight lately? Did you check all the survival gear, or was there too much of a rush to get off? Getting off on time is important, but doing a thorough, safe preflight could save your life.

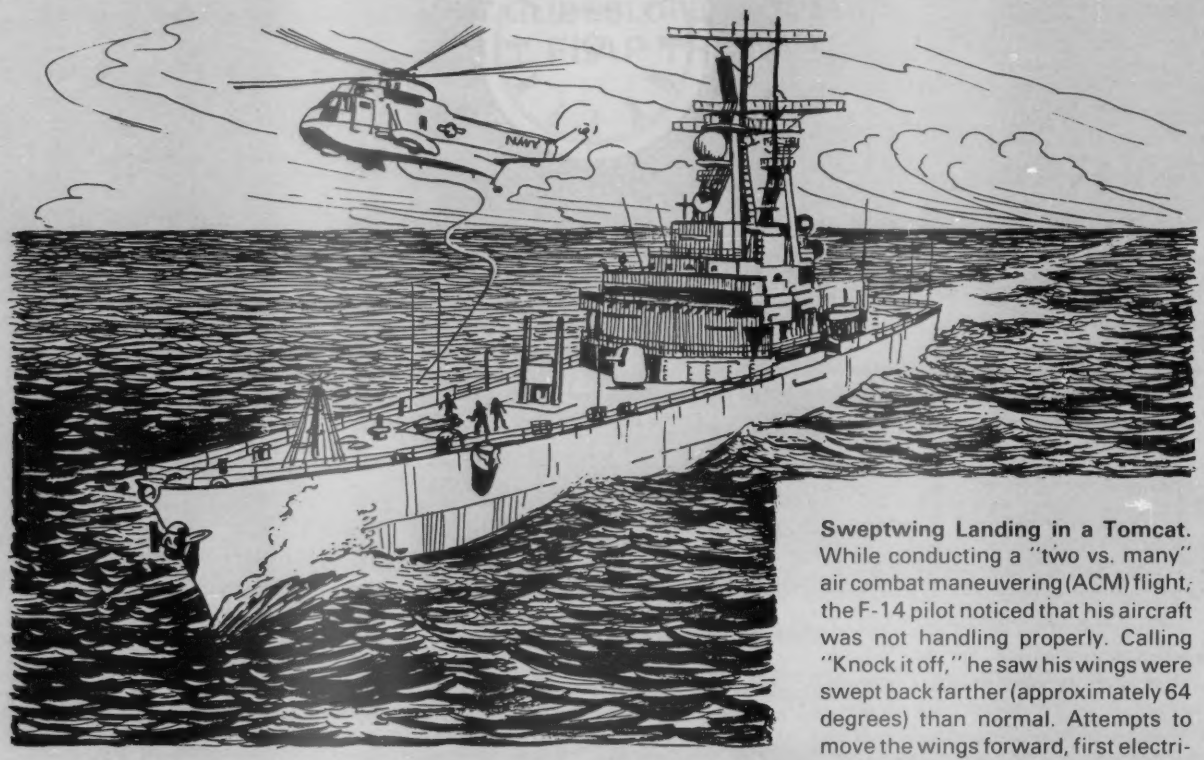
In the air:

- **No time for thorough briefs.** Too rushed to brief everything that should be covered? Especially during ready alert, we often fly with *plus-ons* and different crews. Even when we fly with our own crews, we need to ensure we brief thoroughly so that all crew members know what to do in all contingencies.
- **No time for drills.** Rough preflight? Maybe you didn't get as much sleep last night as you would have liked? Maybe we'll just blow off the drills this time, eh? When was the last time your crew did a bailout drill or a ditching drill? If you are at 500 feet on a MAD run in SOCAL, are you ready to ditch? Practice.
- **No time to write up gripes.** Just landed from a 12-hour mission? After a four-hour preflight, that makes for a pretty long day. The next crew to fly that plane will fix that gripe on preflight anyway, right? Guess again. Take the extra time to make sure everything is written up or fixed correctly; your friends' lives depend on it.

There's no doubt about it — ready alert months are pretty tough. Even without the ready alert, this business isn't a picnic. With all the pressure, the long hours and the stress of trying to get the job done, it's easy to get burned out. Don't let that happen to you. Be patient, flexible and optimistic. Take a time-out to be safe.

Lt. Scott is an NFO and NATOPS officer with VP 9, a P-3 squadron based at NAS Moffett Field, Calif. His deployments include Diego Garcia, Adak and Misawa.

No time for safety. When it comes down to it, that's the problem in a nutshell.



A Sea King Eats a Cable. Conducting a medevac and passenger transfer, the SH-3 hovered over the cruiser's pitching deck, using the forward vertrep/hover area since the aft flight deck was fouled. As the cruiser pitched down — approximately 10 feet — the helo's hoist hook snagged a small fuel tank vent J-pipe, located one inch forward of the vertrep area. The cable parted at the hook and whipped into the rotors before the guillotine could be used. The cable also sheared at the winch when the cable became entangled in the main rotors.

The aircraft commander declared an emergency and flew seven miles back to his waiting carrier, making an uneventful landing.

Post-flight inspection revealed damaged blade pockets on three main rotor blades. A 42-foot piece of cable was removed from the rotors.

Several lucky "what ifs" were noted, including: What if the cable had contacted the tail rotors, or the hook contacted the main rotor blades? Suggestions resulting from the incident included: painting deck obstructions, such as the J-pipe, with contrasting colors, and installing different hoists with clutch assemblies which release cables at designated tension loads.

The squadron CO commented: "This flight crew truly dodged a bullet. . . The fact that the cable instantly snapped and shot through the crewman's hand and up into the main rotor system without causing injury is remarkable. . . Flight crews must be continually aware that routine hoisting evolutions can instantly become non-routine. . . Close aircrew/flight deck crew coordination is essential."

Sweptwing Landing in a Tomcat. While conducting a "two vs. many" air combat maneuvering (ACM) flight, the F-14 pilot noticed that his aircraft was not handling properly. Calling "Knock it off," he saw his wings were swept back farther (approximately 64 degrees) than normal. Attempts to move the wings forward, first electrically, then with the mechanical emergency wingsweep handle, were unsuccessful. Matching the emergency handle with the actual wingsweep position, he tried to move the wings aft, then forward to the 20-degree position. The wings moved aft another 2 degrees — 66 degrees now — but would not come forward.

The aircrew, faced with an aft wingsweep landing, discussed factors such as arresting gear limits, tire speed, lack of high lift devices and approach speed. After considering these factors, they decided to attempt a short field arrestment at NAS Jet Base, with its 12,000-foot runway.

A controllability check was made en route to the field. The approach speed was determined to be 180 knots.

The pilot extended the glove vanes, which reduced the approach speed to 175 knots. During this time, the RIO in-

AIR BREAKS

formed the tower of their problem and requirements for landing. The pilot flew his "slick" F-14 on a visual straight-in, touching down at the approach end at 175 knots. Although the hook skipped over the short field gear, the decision was made to remain on deck. The pilot raised the hook to preserve the hook point for possible use at the long field gear. Cautiously applying brakes at approximately 130 knots, the pilot managed to get the Tomcat stopped prior to the long field arresting gear.

Lt. John J. Mitchard (pilot) and Lt. David J. Short (RIO) of the VF 101 Squadron Augment Unit (SAU) were commended as COMNAVAIRLANT's Pros of the Week. — Ed.

Who's Out There? The Corsair pilot returned to his field after a night instrument training flight. The weather was 1,400 scattered, 2,500 broken, with five miles visibility in light rain. The pattern was nearly saturated as the A-7 approached the east runway. The pilot requested a touch-and-go, but the controller told him that a full stop landing was required.

As the pilot and the controller (a trainee under supervision) discussed the situation, they apparently became distracted. The aircraft flew south of the runway centerline, never appearing on the final controller's scope.

Finally, when the controller instructed the A-7 to descend onto the glide path, he was actually looking at the track of an S-3 four miles behind the inbound Corsair. The Viking was on a different frequency, to make matters worse. Because of the initial instructions, the A-7 pilot did not realize the controller's error. Everything seemed to be right.

However, the pilot of the Corsair soon saw that he had flown past the airfield, as he was passing through 600 feet AGL, four miles east of the runway. He initiated a wave-off and informed the controller.

The squadron commanding officer's comments were: "A series of errors by the controllers and the pilot provided this setup for disaster. Controllers must know who they are controlling, and procedures must be designed to eliminate missed or incorrect hand-offs. The pilot in this incident temporarily reversed parts 2 and 3 of the first law of aviation (aviate, navigate, communicate)"...

Let's Be Careful Out There: Flight Deck Awareness. Two FRSs were conducting night CQ and flight deck crew indoctrination. During an airman's third supervised evolution — five were needed for final qualification — she and her assigned "buddy" supervisor responded to a call from the tower over the 5MC for help in the pushback of an F-14.

The sea was calm and the deck steady, with several aircraft turning on the foul line directly in front of the F-14. The ship's policy was to manually push the aircraft back instead of using a tow tractor when so many aircraft were turning.

As the airman pushed on the leading edge of the Tomcat's port stabilator, directly behind the port main mount, she fell. The port main tire rolled up on the edge of her right boot.

The flight deck director immediately signalled the aircraft crew to halt the F-14. Only the steel-toed boot saved this crewman from more serious injury.

When You're Hot, You're Hot — Marine Style. A typical SOCAL desert day, with a temperature of 106 degrees Fahrenheit and clear weather. Two A-4M pilots briefed a low-altitude tactics hop with an early morning launch time. The event went as planned, and they recovered at MCAS Desert. The lead pilot told his wingman that his aircraft's air conditioner didn't seem to be functioning properly, but the aircraft was up.

They briefed a second hop, a low-level navigation sortie, to be led by the wingman. Prior to launch, the two aviators drank sodas and a pint of water. They recovered uneventfully at their SOCAL base and briefed for yet another hop — their third of the day — a high-altitude flight. Again, they consumed more water.

During the start evolution, the lead pilot felt dizzy and experienced a tingling sensation in his fingers. He realized he couldn't continue the flight, and shut down. The wingman also shut down and assisted the lead, who by now had lapsed into semi-consciousness and was slumped over in the cockpit. Base fire and flight line personnel responded. They removed the incapacitated pilot from his Skyhawk, and took him to the dispensary where he was revived by rehydration within an hour.

The flight surgeon noted that dehydration, coupled with the aircraft's improperly functioning air conditioning system was probably the cause of the incident.

The CO's comments praised the pilot for realizing his problem and shutting down before leaving the chocks, noting that he was "one of the top athletes in the squadron and one least suspected of dehydration." The fact remains, however, that this aviator may have had big problems and a possible tragedy, had he taken off only a few minutes earlier. He had not eaten anything substantial for nearly eight hours, and had only drunk a minimal amount of fluid. His wingman had done the same, and might have experienced the same symptoms soon afterward. No matter how good a physical specimen you think you are, you need to maintain that body with proper diet, and fluid replenishment. The exacting profession of naval aviation demands nothing less. —Ed. ◄

Staying Alive in the CV Bureaucracy

By Lt. Niel L. Golightly

THE Navy spends a lot of money training its naval aviators; one million dollars is the nice round figure we use when we're trying to impress Betty Boop in the back bar. In fact, the real figure may be even higher by the time the typical tailhooker reaches his fleet squadron.

For that sum, the Navy buys an aviator who is trained to follow procedures, make decisions and take his airplane — representing a measurable fraction of the GNP — into harm's way and back. He is "commissioned" to use his best judgment in executing his mission, lending legal force to the long-standing tradition in aviation that the pilot-in-command is ultimately responsible for his airplane. Unfortunately, that seemingly inviolate principle may run into heavy buffet in the CV environment.

Ensign Smith has been out of the RAG for three months. He's logged 200 hours in type, and he's four weeks into his first cruise. His inexperience shows, but he's a disciplined wingman and a good stick. His skipper feels good about him, even tonight with the deck pitching and the weather marginal. Ens. Smith breaks out at two miles on his first approach, but gets waved off for a fouled deck. A bolter and a wave-off later, he's bingo on the ball.

Smith's pucker meter is pegged, and the phone line between the bridge and air ops is buzzing off the hook. On his fourth approach, he breaks out too far left and takes it around again. With his fuel state at 100 pounds above bingo, there's little doubt in his mind that he'll be sleeping at the BOQ at East Coast Air Force Base tonight. He starts his bingo profile.

But now he gets this radio call: "One zero four, your signal is tank. Clean up, climb to angels 2.5. The tanker is at your 2 o'clock for five miles."

Ens. Smith knows that the chances are unacceptably high that he will never find the tanker in this goo. Even if he does, it is liable to be sour. In any case, he will burn 500 or 1,000 pounds of precious gas in a potentially futile effort to stave off a divert. Yet the calm authoritative voice of a man with a cup of coffee at his elbow is telling him to tank.

He tries a gentle reminder. "One zero four is 200 pounds below bingo. Understand my signal is tank?"

"Roger, one zero four. Two o'clock now, four miles."

Now what?

Ens. Smith's nugget judgment is already overstressed by weather, by darkness, by a creeping conviction that this is not his night and by his desire to be a hacker and get his airplane aboard. Intuitively he knows that he should be squawking 7700 and climbing to his bingo cruise altitude. But he's also been told that only the captain of the ship can authorize a bingo. He assumes all those salty old commanders down there must know something he doesn't. He swallows hard and sets off in search of Texaco.

From this point, it will be mostly luck that determines whether Ens. Smith gets on deck safely or winds up in the darkened ocean with his airplane settling into the silt at the bottom.

Rare is the tailhooker who has not been caught in the bind between his own professional judgment on one hand and contradictory direction from air ops, pri-fly or the bridge on the other. To understand why this is so, one needs to accept that the aircraft carrier is a 5,000-man bureaucracy, composed of numerous departments, each with its own personalities and priorities. Inevitably, there will be competition between those priorities: The flight deck will be operating under one set of constraints, air ops will be pushing for a particular mission, CAG will be trying to get quals for his pilots, the bridge is concerned with maneuvering in restricted waters, and the embarked flag may have international political considerations in mind. In all of that clamor of priorities, each with its own powerful constituency, it sometimes seems as if the humble priorities of the individual pilot in his individual airplane get jostled to the rear.

Consider another hypothetical example. The ship is returning to home port after a short work-up. A night "bagex" prior to the fly-off is planned. The weather at the fly-off destination is at TACAN mins; yet, airplanes are launched — after multiple traps on a pitching deck in bad weather — with enough gas to arrive at NAS Homeplate **but not enough to shoot an approach and divert to a legal alternate.**

One branch of the CV bureaucracy wants to bag traps, another prefers not to hot pump jets after a long day of flight ops, still a third clamors for a safe margin of gas. What happens when the CAG and most of the squadron skippers have already flown off? How far is the left-behind lieutenant OINC going to get when he bangs on a desk demanding more gas for his squadron's jets?

Can you say, "Pack sand"?

Clearly the hazards of flying within the CV environment are not limited to hitting the ramp or dribbling off the cat. The decisions that have to be made in the cockpit are often much more difficult than such technical choices as whether to eject, shut down an engine or suspend a cat shot. These are decisions that pit the aircrew's immediate assessment of its situation and options against "mother's" priorities.

The foundation of that critical relationship starts with the basic bunkroom J.O. — the lieutenant junior grade pilot-in-command or section lead. He's got to have an airtight knowledge of such variables as bingo fuel figures, weather mins for Case I, II and III recoveries, wind-over-the-deck requirements, divert field data and landing limitations with various system malfunctions. He must be prepared to intelligently assess decisions made for him outside the cockpit and challenge them if those decisions sound as if they're going to put him in a box.

At the same time, his chain of command must do three things:

First, it has to back him up when he hits the limit of reasonable performance — and says so. When he throws the B.S. flag during a night EMCON recovery in bad weather, or a Case I pattern in two miles of haze, or a CQ evolution at 0300 after an 18-hour day and 2½ hours in marshal, listen to him. Naval aviators rarely cry uncle, but when they do, it's time for everyone in the CV bureaucracy to take notice.

Second, it has to communicate. If it doesn't, aviators cannot be expected to make the decisions they've been trained to make. They must *know* that the only divert field around is socked in; therefore, a bingo is not an option. They must *know* that the launch has backed up and they should expect a delay in marshal. They must *know* that they'll be double-cycling on that Bear escort and, therefore, should not use Zone 5 trying to return in time for the recovery.

Third, it has to resist the irresistible temptation to micromanage.

Once the ship communicates the situation, it should rely on the million-dollar officer in his individual cockpit to make sound, professional and immediate decisions, perhaps with a little help from his CATTC rep looking at the pubs. Otherwise, precious gas and minutes will be wasted as the bureaucratic machine is allowed to run its ponderous course — gas and minutes that could mean fewer options and bigger problems for a pilot with an airplane deteriorating around him.

Admiral Bull Halsey used to say, "Tell your officers *what* you want done, not *how* you want them to do it." A million dollars says the modern tailhooker has the training, judgment and skill to accept that kind of responsibility. The CV bureaucracy would have a lot more time to do its job if it would let the individual aviator do his. ◄

Lt. Golightly is an LSO for VF 14 based at NAS Oceana, Va. He has logged 1,650 hours of flight time and 250 traps.

Electronic Mishap Investigation . . . or

Readers of the Lost Spark

By LCdr. J.G. Kline

AS naval aviation has evolved from comparatively simple flying machines to today's extraordinarily complicated "black boxes" with wings and a payload, the black art of aircraft mishap investigation has gotten involved with electronics. While the tedious field excavations remain, more and more answers are being found in the semiconductor-lined soul of the deceased aircraft.

Have you been flying long enough to remember round gauges with needles? You know the type. Hit 'em real hard and you can get good reliable readings. Seeing less of them, aren't you? With their demise, a new challenge has arisen. No more "clocks," only an instrument panel full of CRTs (cathode ray tubes)!

Indiana Jones doesn't have a lock on doing homework before going treasure hunting. Know what non-volatile memories are aboard your aircraft and take a good look at it so you'll recognize it in the field. Your Salvage and Reclamation Handbook will tell you exactly how to handle and preserve your finds.

Break one of those suckers and what have you got? The wiley electron leaves no trail . . . or does he?

Most displays generated electronically really do originate from an appropriate source. Many times this source has a memory core. If you know how to fix the circuit card and dump the stored data, you may find some incredibly useful data. Let's look at a few examples.

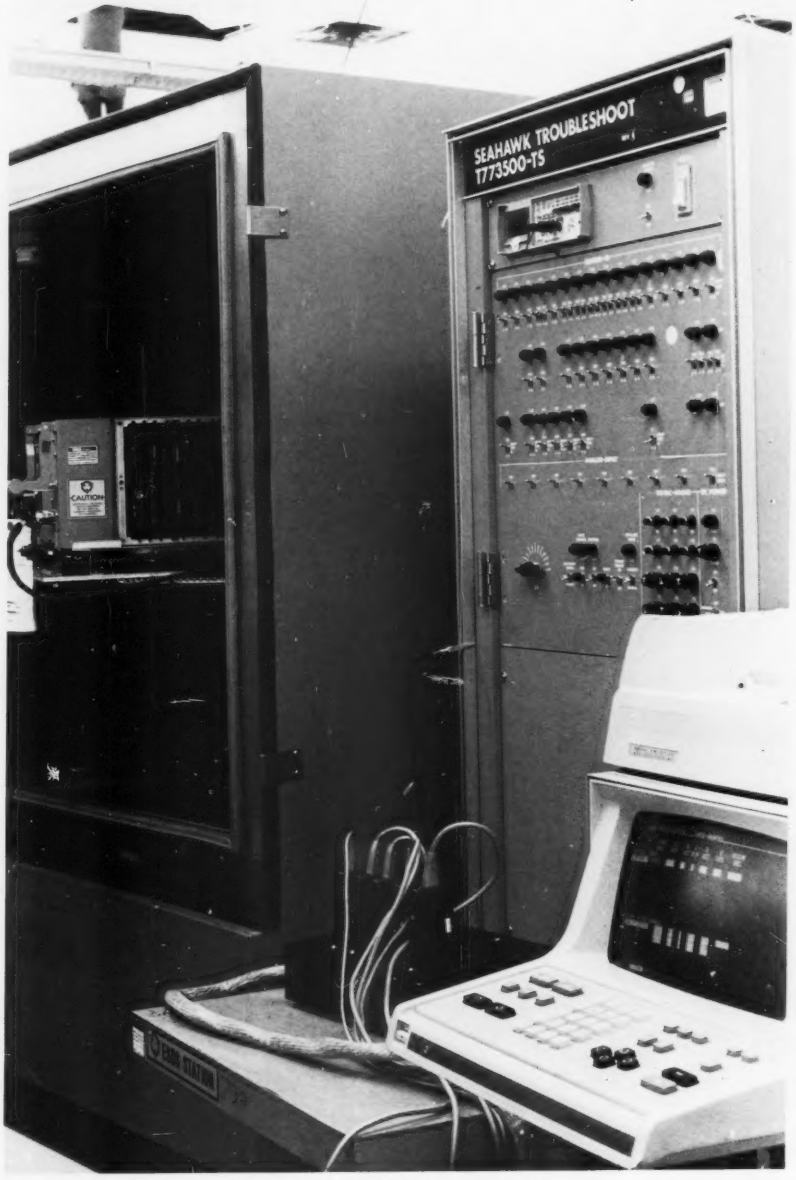
The latest generation of helicopters continues their long-established trend of being aerodynamically enigmatic and mechanically baffling. Factor in a dashboard full of TV tubes, and the investigation equation really gets complicated. You must approach this problem aggressively; put on your rumpled fedora and beat-up leather jacket and become one of the Readers of the Lost Spark!

En route to the crash site of an SH-60B you ponder the location of the icon of knowledge you seek. Where is the temple? What does it look like? Where is the treasure kept? Does it "bite"?

Newer helicopters (SH-60B, CH-53E) contain several vital pieces of electronic gear that, even after a crash and salt water submersion, retain their last few outputs in a non-volatile memory core (which means they remain after power is lost). The SH-60B has two superb sources of memory data. The automatic flight control system (AFCS) has a memory that can tell you if it had any faults and what mode it was operating in. The operation program memory of the AN/AYK-14 computer can give you many flight, operational and equipment status parameters.

The latest generation of fixed-wing aircraft also possess non-volatile memories. The AV-8B and F/A-18 have extremely useful maintenance and operational memories from which valuable data can be extracted. They also have

Photos courtesy Hamilton Standard Division of United Technology.



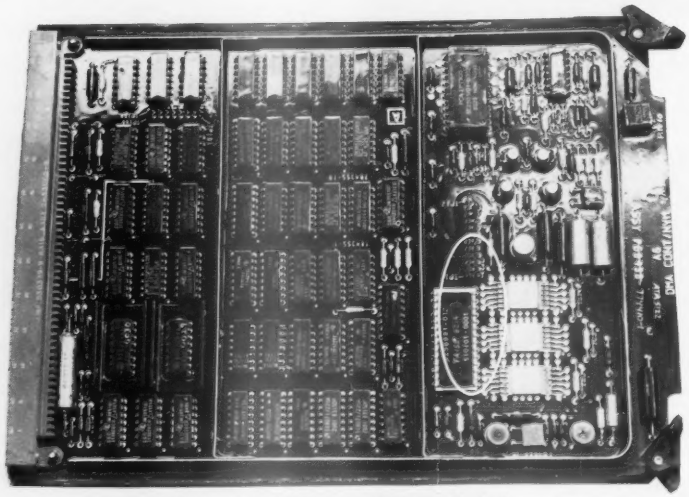
The machine that reads the memory core.

Circuit board location in computer board with memory core indicated.

SH-60B AFCS computer.

memory from the AN/AYK-14. Several next-generation aircraft (such as the F-14D and A-6F) will make even more use of on-board computers with non-volatile memories.

Like Indiana Jones, you must do your homework before you go snatching treasure from the temple. Find out what non-volatile memories are in your aircraft. Take a look at one so you'll recognize it in the field. Examine your Salvage and Reclamation Handbook so you'll know how to handle and preserve your valuable finds.



Circuit board containing memory core (circled).

Once removed from the wreckage and *properly* preserved, the boxes must be transported to the manufacturer for checkout, data extraction and repair. A *copy* of the extracted data tape must then go to the aircraft's prime contractor for analysis. The trail may seem long, but the rewards justify it.

Your friendly, neighborhood investigators at the Naval Safety Center (Autovon 564-3321) are standing by to handle any specific questions you may have. But no snakes, please! We hate snakes! ◄

LCdr. Kline is a mishap investigator at the Naval Safety Center.

Does It Pay to Press a Launch?

By Lt. Robert E. Ray

WE walked early, hoping to get a head start on preflighting our EA-6B Prowler. The early bird gets the first cat, right? Wrong.

As we walked out, we saw a familiar sight — our Prowler stuffed on the bow, still waiting for a respot. So much for the early walk. We started the preflight anyway, hoping to stay ahead. We had to stop halfway through while the yellow shirts respotted the airplane. During the respot, the Boss cleared all aircraft for start. Once the respot was complete, we quickly finished the preflight and manned up. Ten minutes had already passed since the Boss called away the launch.

Our troubles weren't over. During the prestart checks, after pressing the fire/oil test button to test the low oil lights circuitry, the right low oil light remained on, indicating the oil level was too low to start the engine. I immediately told the troubleshooter; I suspected either a bad light or detector since the light hadn't been on before the test. The engine was quickly serviced with oil, but the light remained on.

I decided to go ahead and start the engine in hopes that scavenging the oil would cause the light to go out. I started the engine, paying special attention to oil pressure.

While waiting to see if the light would go out, I started the other engine while ECMO I aligned the INS. We then proceeded with the plane captain checks so we would be ready to go if the light went out. Unfortunately, the light remained on. Launch time had arrived, and other aircraft were taking off. It wasn't looking good for the home team.

We decided that changing the detector was our only hope for getting airborne. The birdcage was dropped (not a standard procedure with both engines turning), and the AEs quickly swapped the black box. The light was out — we were up!

By this time the launch was complete . . . except for us. The first airplane from the recovery had just trapped aboard. They were holding cat one open for us, but with the recovery already in progress, we had only about a minute to get to the cat if we were going to make this launch.

The chocks were pulled, we got a quick-look check and taxied to the cat while reviewing the before-takeoff checks to make sure we hadn't missed anything during the scramble. Take tension, control and instrument checks, salute, and we're airborne at last.

After checking in with Strike, we started our climbout to proceed on our mission. We were all feeling pretty good about getting airborne in spite of the problems we'd had. The good feeling didn't last long. Moments later, Strike called us and told us not to maneuver our airplane because a tool had been left in our birdcage.

The seriousness of the situation was obvious. Control cables for the rudder and horizontal stabilizer run through the birdcage. If that tool had been tossed around by the cat shot or aircraft maneuvering, it could become entangled in the control cables.

As these thoughts were running through my head, the Air Boss came on the radio and told us to charlie. ECMO I quickly broke out the checklist. We went through the descent and approach to landing checks while I turned on the wing fuel dumps to get us down to landing weight. Once the wing and droptanks were empty, we made our approach to an OK 3 wire.

Now safely on deck, we had time to analyze the chain of events that put us in the air with a tool in our birdcage. First, the investigation revealed that in the rush to get us to the cat, CDI personnel had not inspected the work after the detector was replaced. Second, no tool inventory was done until after we were airborne. *However, our maintenance personnel did do the right thing by notifying the tower once they discovered they had a tool missing.* Finally, as pilot in command, I'd taxied out of the chocks without having been signaled that all tools were accounted for.

Had we done **any one** of those three checks that were left out, we would have found the problem before it became a problem. **Don't let the press to launch cause you or your maintenance troops to skip checklist items or plane captain checks. You might save time, but you might lose your aircraft!** ◄

Lt. Ray flies EA-6Bs and is NATOPS officer with VAQ 140, based at NAS Whidbey Island, Wash.

. . . A new guy in a unit will be trying to sort out what is "being safety conscious" and what is "not being a hacker" . . .

Where Do You D

By LCdr. R.D. Sandberg

Once an aircrew is ready to slip the bonds of mother earth, the question asked of maintenance control is, "How's the aircraft look?" An easy enough question, you say. When you have a downing gripe, you down the airplane. It's just a matter of checking that little box on the MAF indicating that the aircraft is down and letting the maintenance experts tackle the problem. It's that simple. Or is it?

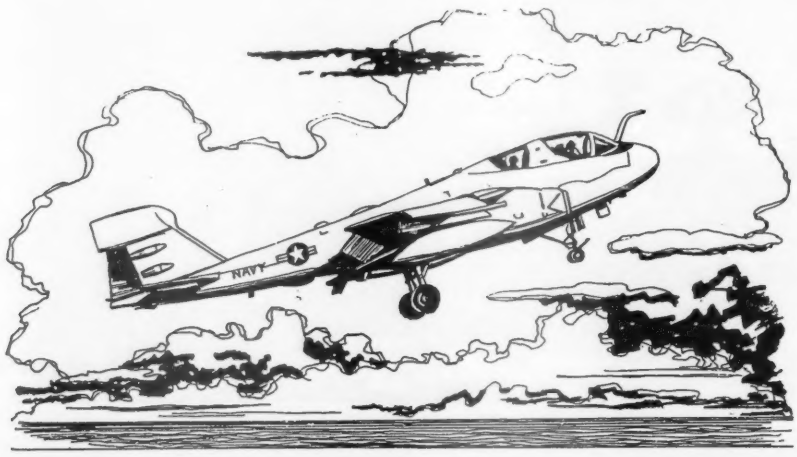
On preflight you notice that the emergency blowdown system for the landing gear is down to 1,800 psi. Being a recent RAG stud and Mister A-J-squared-away NATOPS, you know the minimum pressure should be 2,450 psi. Already running late, you point out the discrepancy to the plane captain (PC), informing him that it needs to be pumped up to 2,450 psi. The reply from the PC comes loud and clear and catches you off guard as he proclaims, "The nitrogen supply system on the boat is down, so we can't get any, sir. You'll have to take it or leave it."

You quickly learn things operate a little differently in the fleet. You start to realize that everything is not simply up or down, black or white. There seems to be some gray areas. Soon, a new term called "operational necessity" is added to your fleet vocabulary. It has been said that "operational necessity" is invoked whenever the command is willing to accept risking the loss of the aircraft and crew in order to accomplish the mission. In point of fact, however, many commands choose to interpret the term more loosely. Simply put, some commands and individuals use "operational necessity" as an excuse to accept a less-than-desirable airplane, even when the only operational necessity is the pressure to meet training goals.

By the very nature of our business, we are extremely competitive and continually push excellence as **the** standard in naval aviation. To objectively evaluate various commands with respect to this standard, we compare statistics. The totalling of the beans determines who really is the best. Sortie completion rates, flight hours, traps, FMC/MC rates and boarding rates are but a few of the beans we count. In the scramble to gather the most beans, pressure to succeed can become paramount and can easily compromise a unit's safety program. This pressure is felt not only by aircrew but perhaps even more keenly by maintenance personnel. Anyone who doubts this need only spend a day of cyclic ops in maintenance control.

Adverse reactions to the pressures come in all forms and disguises. We all chuckle at the well-used phrase, "Figures lie and liars figure." But how many of us like to see statistics that make us look bad on paper? It hits us right in our pride locker. The fear of looking bad can readily plant the attitude within the unit that achieving desired statistical results is the ultimate goal.

Another common negative reaction is using the rationale that "Rules are **really** meant to be broken. It **really** doesn't apply to me." Try getting an Aviation



Draw The Line

Mishap Board to buy off on this one.

Good Luck!

Or how about the "We'll only do it this one time" syndrome? How many times have you seen this one rear its head during a CV fly-on or fly-off? Or you prefer the reaction of, "The bird is basically up. I'll just down it when I land." Minimum levels of headwork dictate that if you know the aircraft is going to be down when you return it, it's down prior to the flight. When you were a nugget, maybe you used this famous disguise yourself: "They'll think I'm a non-hacker if I don't take it."

And then there is get-home-itis that seems to short-circuit the brain box and allows us to accept questionable flying machines or fly into weather that even Superman wouldn't tackle. These are but a few of the *many* adverse reactions to pressures that often fall far short of operational necessity.

It's a demanding and exciting job, and the pressures will never go away. Being human, we will react, and we will make mistakes. But a true professional will learn from his mistakes and from the mistakes of others. A new guy in a unit will be trying to sort out what is "being safety conscious" and what is "not being a hacker." Leadership from the top should anticipate this process of maturing and provide the proper command safety climate. As a pilot's skill and experience level increase, his ability to sort out the wheat from the chaff will improve, enabling him to make the correct decisions so vital in our unforgiving business.

The bottom line, and where it is drawn, is the signature block on the "A" sheet. Remember and consider the consequences the next time you sign for your multimillion-dollar flying machine. Are there any gray areas that you need to consider? Is safety being compromised in order to maximize the bean count? Does **any** mission during peacetime qualify as an operational necessity? Be professional and don't hedge your bet on safety. The weekly safety summaries are full of bad bets. ◄

LCdr. Sandberg is administrative officer at NAS Lemoore, Calif. He is a tactical jet aviator with extensive background in the EA-6B aircraft and in the training command.

. . . The port engine is quitting! What do I do? Too late to suspend. Jettison the stores, reduce my weight. Time is almost at a standstill . . .

Are You

By LCdr. Tim Sparks

HOW many times do you go through the immediate action emergencies for your aircraft? Like all naval aviators, you had it drilled into your head from day one at Whiting Field. So when I reported to the Intruder RAG, I immediately set about learning the litany of steps required to keep my bird safely in the air. I knew that sooner or later I would be called upon to demonstrate these steps for real, but deep down inside I felt like any other aviator . . . it would happen to the other guy, not me.

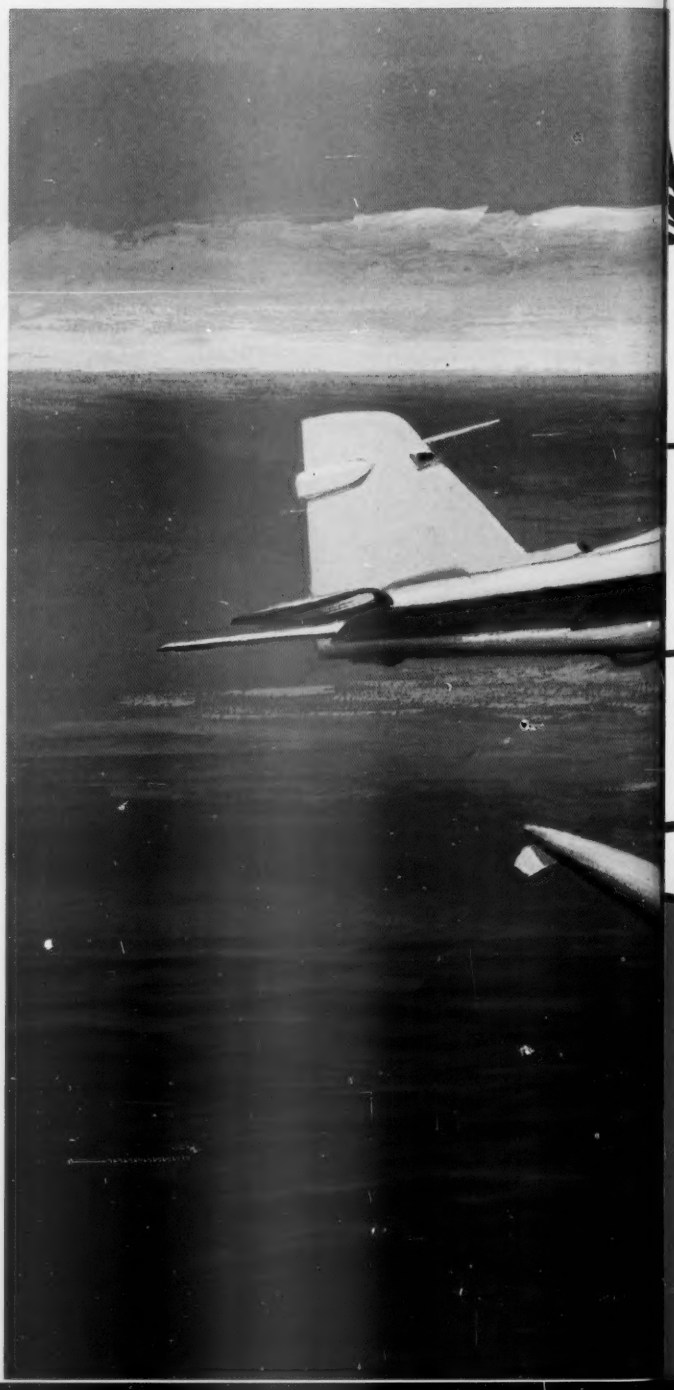
After completing the RAG, I reported to my new squadron and set about learning what the fleet is *really* like. The weeks turned to months, and the NATOPS manual slowly started to slip out of my daily required reading. Then during an AOM I learned that I, along with my fellow air wing "nuggets," would go to the boat for a CQ det under the watchful eye of the CAG and squadron LSOs. Back to NATOPS and lots of night bounce periods to be ready for carrier ops.

The plan was simple. Catapult off, drop the hook, turn downwind and bag traps. What could be better? As expected, everything went as advertised. The following month we went on an air wing weapons det. After that, back to the ship for REFTRA and real fleet ops. Again more bouncing and NATOPS study, Case I, II and III approaches in CV NATOPS study, and air wing SOPs study.

On the day of the fly-aboard, my B/N and I discussed all of the procedures we would use while operating around the boat. This would be my second trip to the Big "E" since the RAG, and as usual the first day would be CQ, just as I had done before. Catapult, no clearing turn, drop the hook, turn downwind; just another BAGEX.

The three-hour flight to the ship from Whidbey was routine, just trying to look good on the skipper's wing. Then the inevitable call from the boss to "Charlie." I'm sure there isn't an aviator whose pulse doesn't quicken from that little shot of adrenalin when he hears the word "Charlie." I busily compute how much gas I need to dump to be at max trap on the first pass. Into the break nice and tight. The skipper breaks, and I follow suit with a nice hard level pull. Gear down, landing checks complete, ball call and a trap.

I comment to my B/N it was a fair pass, but he thinks it might be an OK. We taxi up to the catapult, complete the takeoff checks and roger the weight board for 36,000 pounds. Into tension one more time, power at military. My B/N is all set to go. I salute and the catapult officer touches the deck . . . the "MASTER CAUTION" light flickers on! I glance down



a FODer?

Poster idea contributed by LCdr. R.V.S. Herd, ASO, NAS Oceana

C57-GI-370

Naval Safety Center
NAS Norfolk, Va.

BULL

Seat belts have been proven effective
in millions of miles of driving.
Wear 'em and arrive alive.

Naval Safety Center
NAS Norfolk, Va.

A17-SD-986

I don't need a safety belt when I'm traveling at low speeds or going on a short trip.

Wearing a safety belt, I could be trapped in a burning or submerged car.

I might be saved if I'm thrown clear of an accident.

are
YOU

Really Ready?

. . . We set up for a straight-in approach but fly the approach using single-engine approach speed, just in case our luck turns and we are single-engine again . . .

to the annunciator panel: The left "FUEL PSI" light is on. The cat fires.

I can't believe this is happening to me. Time goes into slow motion. Everything is crystal clear.

The port engine is quitting! What do I do? Too late to suspend. Jettison the stores, reduce my weight. Time is almost at a standstill. A quick glance at the RPM on the port engine confirms the worst, 90 percent RPM and decreasing.

I've got to reduce my weight. Jettison the stores!

We are at the end of the cat stroke. RPM 86 percent and decreasing.

I look at the Emergency Stores Jettison Button, then press it. I feel the thump.

The airplane is sluggish; she goes into a yaw from asymmetric thrust. I can feel it, no need to look at the ball for confirmation.

My B/N says "Climb!" "I can't, we're single-engine," I reply. The radar altimeter indicates 70 feet, and airspeed is 140. I need to set 19 units angle of attack for optimum single-engine climb.

But I can't remember where 19 units is on the gauge. I pause and have to think about where that point is on the gauge. I still can't remember, but I know that 20 units is the big tick mark so I hold it there.

"Aircraft off the bow, have you got a problem?" the boss is calling.

Time is still in slow motion as my B/N replies, "504 is single-engine," to the boss.

One more scan of the instruments to make sure I have everything done and all the steps of the emergency procedures have been completed. The gear — the landing gear is still down! But I'd raised them! No, the gear handle is still down. Raise the gear. I had missed raising the gear when I was jettisoning the stores.

"If you're single-engine, raise your gear," the boss says.

Time is starting to return to normal. I'm at 150 feet on the radar altimeter, 150 knots; we're going to be OK. I've got a lot of cushion now.

I mutter an oath for missing the landing gear but finish the steps in the emergency procedures:

Wing Dumps — on. The wings are empty. No need.

Secure affected engine.

Five minutes later we are at 3,000 feet, 200 knots.

We decide to attempt an airstart. Our luck is finally changing; we get a successful relight. Now I've got the engine back, but we really don't know why it quit to begin with. Now what to do? They talk us into bringing it back aboard. We set up for a straight-in approach but fly the approach using single-engine approach speed, just in case our luck turns and we are single-engine again. We call the ball and trap aboard, military power, a flicker of the left "FUEL PSI" light. When the power comes back, the light goes out, and I clear the landing area. Now I realize what just happened in the last 15 minutes, and the shakes start.

Since this incident occurred more than a year ago, I can **almost** reflect on it with some objectivity.

First, I was lucky; I made some mistakes. Had this been a full tanker, the small delay I took in raising the gear would have sent us for a swim. In the CQ mode, the A-6 is light enough that it will fly (albeit not too well) if you do nothing except rotate to the correct angle of attack.

Second, habit patterns. I had only 14 traps since the RAG. All had been light catapult shots. I had never raised the gear since I was always going to turn downwind.

Third, preflight preparation. I *thought* I was prepared. With my level of experience (214 A-6 hours), I had my hands full. You can memorize the emergency procedures, but if you really haven't tried to visualize or, best of all, tried it in your flight simulator, you aren't prepared. Simple things like knowing where your hands are going to move, and in what order, are essential. What you are going to look at, and what you want to see when you look, are critical. These are all a part of being prepared to handle the emergency. Now, I never cross the JBD without going through the hand motions and looking at the visual cues that are going to keep me flying.

Aircraft emergencies occur with no regard for your experience level. They can and may very well happen to you. Be prepared as well as you possibly can — you owe it to yourself.

LCdr. Sparks flies A-6s with VA 95 in USS *Enterprise* (CVN 65). Previously he trained with VA 128. He had a three-year fleet tour in EA-6Bs as an NFO before earning his pilot's wings in 1983.

If the unexpected happens
and you need a fast answer
to safety questions, we're ready to help.
Call

1-800-HOT-SFTY

We're the Naval Safety Center, and this is our 24-hour hot line.
Use it.

Props Kill!

By LCdr. Timothy Leighton

THE scene is easy to imagine: a flight deck busy with the activity of carrier flight operations in the Mediterranean. A C-2 is preparing for a mid-cycle launch. As the pilot begins his starting sequences, an inattentive blue shirt emerges from behind the C-2 and heads directly toward the spinning propeller. Despite frantic efforts of the "chain of life" personnel surrounding the aircraft, this hapless individual continues walking into the propeller. He dies instantly from massive skull and upper body injuries. Why would a young, flight-deck-savvy man walk into a turning propeller?

This scene is fictional, but a similar accident almost happened recently on a deployed carrier. The usual causes are fatigue and inattention. But in this case there is another reason. The "reprocured" C-2A has recently been introduced to the fleet.

The new version of a familiar workhorse has a self-start capability using its own APU rather than a huffer. The traditional flight deck signal for this aircraft preparing to start has always been the presence of a huffer alongside, warning all personnel to remain clear. This was especially true with the E-2/C-2 aircraft. With the introduction of many new, self-starting carrier capable aircraft, including the C-2, we won't see bright yellow huffers alongside. Due to the nature of the COD's mission, they can and will start without this visible warning outside normal launch windows, adding yet another variable to this potential hazard. These two factors could easily lead the unwary man astray.

What can be done to minimize propeller hazards?

— Educate CV/CVW flight deck personnel on the lack of familiar visual cues for the COD start.

— Brief squadron "safety chain" personnel to be especially vigilant during C-2A starts.

— Ensure the Air Boss places increased emphasis on ". . . stand clear of props, intakes and exhausts . . ." during 5MC announcements.

The danger of spinning props has always been a recognized hazard aboard our carriers. There have been few incidents and no major accidents in recent years, due to both a decreased number of props and an increased awareness of all concerned. We now have a new aircraft with improved capabilities to bring the fleet people, parts and mail. We cannot afford to let this new aircraft deal a tragic blow to that record of success. ◄

LCdr. Leighton is assigned to VAW 120.

Single-Engine Trap

20 It happened one night off the coast of that favorite spot, NAS West. The scene was an awesome, floating tower of power, with its number affixed in lights upon its side. The weather was not too bad, which was a blessing in our favor. It was during the work-up cycle with the CV, and the embarked staff was playing blue water ops. Meet the players: Ltjg. New Guy with his sidekick, Lt. Should've Known Better, side by side in their trusty A-6. They launch to get some night plugs and a little SSC, and then return for the recovery.

While overhead an island just off the coast (one with a long runway), their trusty A-6 displays a bright red engine fire warning light. After a short delay, the crew shuts down the engine. There are no secondary indications of a fire. The crew calls the skipper, who's airborne in another Intruder. He calls Strike and then decides to bring Ltjg. New Guy back to the CV for a single-engine trap.

I'm sure before that decision was made some factors were taken into account, such as:

- Ltjg. New Guy has fewer than 25 total night traps.
- The ship is still playing blue water ops.
- The WX forecast.
- How much fuel did he have? If he dumped down to single-engine landing weight, did that put him below single-engine bingo?
- If he needed to plug, has he ever practiced it single-engine at night?
- There are three suitable landing fields within 60 miles of his present position and one of them lies directly below the aircraft.
- What if he bolters, and the steady deck becomes not so steady? Or the fog rolls into our long runways while we throw this guy at the deck?

Back to the story, the A-6 flew 110

Let Anymouse Know. We encourage you to write Anymouse whenever you see "a mishap about to happen." If you know of a hair-raising situation in the air or on the deck, let Anymouse know about it. You may help someone else avoid an unsafe incident.

Anymouse is a unique department in Approach where no names are used. All information is anonymous. In fact, Anymouse was born three decades ago when someone couldn't spell "anonymous" and signed his letter "anymouse." Thus, a mouse wearing flight gear has become a worldwide naval aviation safety symbol.

Over the years we have found it is often more prudent and speedy to report unsafe situations anonymously. Keep in mind, though, that Anymouse is not interested in personality conflicts or non-constructive criticism of individuals. All views expressed are those of the writers and do not imply endorsement by the Naval Safety Center.

For your convenience, postpaid Anymouse mailing forms are available in most ready rooms and from most flight safety officers. Use of the form is not mandatory, though. Just jot down your thoughts and mail to Anymouse, Approach Magazine, Naval Safety Center, NAS Norfolk, VA 23511-5796.

ANYMOUSE

NM back to the CV to set up for the approach. After two bolters, now being below single-engine bingo, he was directed to tank, then bingo to terra firma. As expected, New Guy had a little trouble entering the basket to receive the precious contents. But he succeeded, and subsequently made a beautiful landing at NAS West.

What did this evolution lack? Some might say "common sense." How many times has a can-do attitude been the cause of an accident? My guess is a lot more than what's on record. These guys were lucky. Had there been a ramp strike on the second pass, it undoubtedly would have been written off as pilot error, rather than supervisory misjudgment!

Fingerpointingmouse

We weren't there, so it's hard to pass judgment. It does sound as if at least one of the grayer (and cooler) heads should have interrupted this sequence early on. There's a super moral here for all managers and supervisors. Now, all we have to do is get them to believe it. — Ed

Air Traffic Mixup

After a routine bombing hop in the local restricted area, a flight of three aircraft returned to NAS West Coast. Twenty miles out, the lead pilot called for a landing and understood the tower to say Runway 22 was the landing runway, since this was the normal duty runway. While the lead pilot was talking to the tower on COM 1, dash-two was talking to base about flight status on COM 2. Dash-three did not have a clear memory of the transmission.

The active runway was in fact Runway 28 because an A-7 had landed, blown a tire and fodded the primary runway. The lead pilot called the initial and was instructed by the tower to "continue and report the numbers." Tower controllers did not see the flight at the initial, which was not unusual, because of haze in the area. The lead pilot, failing to realize his error, continued inbound and reported the numbers over the wrong runway. The tower, after a brief pause, recognized the problem and told the flight to "turn right, turn right, turn right" to avoid conflicting traffic lifting off a touch-and-go to runway 28.

The tower informed the flight that they had entered the wrong break and should reenter for Runway 28. Reentry was made to an uneventful break and landing.

After return to the squadron spaces, the pilots placed a call to base operations to request the tower tapes be made available to them. Upon careful review, it was revealed that the tower had, in fact, given the correct active runway. The flight, expecting the normal active, failed to note the change and had proceeded to the wrong runway. The lead pilot stated he was preoccupied with his low fuel state. Only luck avoided an otherwise disastrous event.

Wrongrunwaymouse

Where were dash-two and dash-three during the flight brief? Strong communications discipline is essential for formation flights, especially during the critical phases. Wingmen aren't just along for the ride; they have responsibilities, too. — Ed.

Maintenance vs. Safety

As the mid-check QAR, an AMS1 was performing a QA inspection on an aircraft prior to that aircraft being released for a post-phase check flight. During inspection, he noticed the bearings on an L-crank were worn beyond acceptable limits.

He reported this to maintenance control, and the aircraft was removed from that day's flight schedule. In finding and reporting the worn bearings, the AMS1 may have prevented a serious flight control failure, which could have lost lives and several million dollars in aircraft damage. Had he failed to note or report the bearings, he would likely have been held responsible had such an incident occurred.

Later, during the morning maintenance meeting, the day-check maintenance control chief openly criticized the AMS1 for forcing him to "down" an aircraft. Mistakenly thinking that the L-crank inspections were not a part of B-phase inspections, the senior chief demanded to know why the QAR was performing inspections that were not called for in the MRCs. He then told the shop supervisors that this aircraft must be ready to fly that day, and all day shift personnel would remain on duty until it launched, however long that might take.

The position of senior maintenance control chief is critical. His words, actions and attitude will influence every level of maintenance production, from work center LPO to line division trainee. When someone with this level of influence and visibility exhibits a "production at any cost" attitude, the professionalism and morale of the entire department is seriously undermined. No amount of lip service to "safety first" can counter a single incident of this type.

Taking into account the senior chief's seniority and experience, I am appalled that he took such action. Nothing will ever change what happened that day, but there are plenty of lessons here to improve future operations in every squadron.

Tellitlikeitismouse

Hats Off to Safety

In the P-3 community, we are periodically called on to support logistic flights. Overall, these flights are fairly routine. But why is it that people with a cover full of scrambled eggs insist on wearing headgear on the flight line?

I can see why a non-aviation officer might not understand flight line safety, but aviators seem to be the worst offenders. One officer recently insisted on wearing his cover even after several officers had mentioned it to him.

Setanexamplemouse

Crusader C

By LCdr. John Cotton

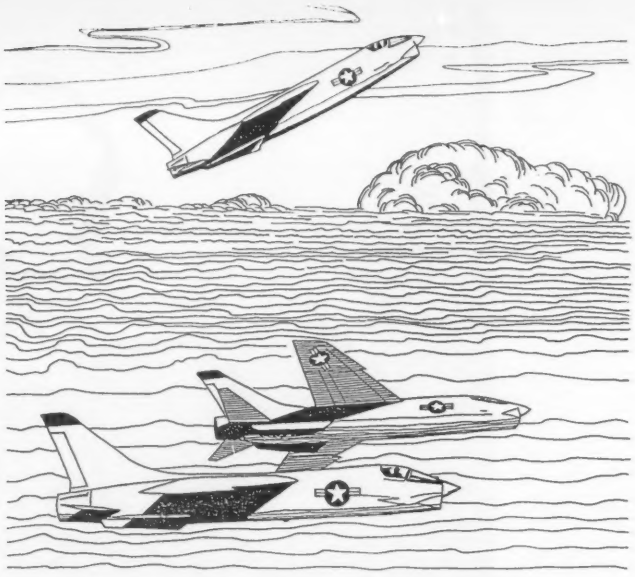
Photo by Art Schoeni

In March 1985, the last of 493 F-8 ejections occurred when the XO of the sole remaining F-8 reserve squadron, Cdr. Dave Strong, punched out of his RF-8G shortly after departing NAS Miramar. The cause of the mishap was catastrophic engine failure, and Cdr. Strong later received the Distinguished Flying Cross for keeping his crippled aircraft as far as possible from the surrounding residential area, minimizing injuries and property damage.

As this issue goes to press, the 30-year career of F-8s with the Navy and Marines draws to an end. The veteran Crusader and its last squadron, VFP 206, retired April 1, 1987. The F-8 saw many high points during its long career including initial performance records, highly successful combat service and pure "time-in-grade." It gave a lot, but demanded much from its pilots. Over 500 F-8s were lost operationally and in combat, resulting in an overall loss rate of 41 percent (only 1,261 Crusaders were built). Nonetheless, the F-8 series was one of the most successful and popular post-Korean War naval jets, and many mourn its passing.

The lessons learned in this last major F-8 mishap have important value for those who carry on the F-8's legacy and tradition, no matter what aircraft they fly. The squadron detachment quickly became the focus of major media interest, and the administrative workload quickly exceeded the capabilities of the few available squadron personnel. Take a few notes. — Ed.

Crunch



THE first day's ambitious flight schedule had two sections launching minutes apart. The patented southern California morning and five up aircraft were just what the Skipper ordered. What could possibly go wrong? The operations and maintenance officers heard the first section go as the pilots lit their afterburners. Shortly thereafter, they heard the second section takeoff. Everything seemed right. The maintenance officer left the ops shack to look after a few details, but came rushing back moments later.

"Ops, I — uh — think we just lost one." The ops officer looked up from his desk.

"Come on, it's too early, and besides, let's not joke about *that*!"

"Look out the window toward La Jolla." The ops officer got up.

"My god! Look at the black smoke. Are you sure it's one of ours?" The maintenance officer nodded.

"We watched it. He had a fire on takeoff. It was No. 2."

"See if we can raise lead on the radio," Ops said.

The base radio crackled. "Base, 606 is down. Good chute. Uhh, aircraft hit a shopping center." Ops and Maintenance stood together, transfixed as they silently watched the rising plume of black smoke about five miles away. In the next few seconds, which seemed like an eternity, each of them went over what had to be done, considering the possibilities of massive casualties, phone calls, decisions and the aviator's most hated nemesis: paper work. No one was there to tell them what to do, and this was no safety stand-down drill. With the CO, XO, Safety and NATOPS officers all airborne, Ops and Maintenance had to act quickly.

No one had had a busier two minutes than the XO. A

The Marines flew both the fighter and photo variants of the 'Gator. Here, an F-8E of VMF(AW) 235 takes off from Da Nang, South Vietnam, in 1967.

Cdr. Dave Strong, CO of VFP 206, prepares to make the last Crusader takeoff on 30 March.

routine section go as dash-2 became a multiple emergency as soon as he deselected afterburner on a Miramar Standard Sorrento Valley Departure. With a burning engine, no thrust, and the RAT out for emergency electrical and hydraulic power, he had 800 feet and 300 knots to get the crippled aircraft over the water or clear of civilians.

He did much more than anyone is expected to do and stayed with the Crusader far too long in an effort to keep it clear of a shopping center. He ejected just before the plane crashed between two buildings in a parking lot and found himself in a good chute headed for the fireball. He remembered to pull the four-line release, enabling him to yank on a riser and steer clear. Landing close enough to feel the intense heat, the XO got out of his harness and chute, grabbed a fire hose from a fire truck and helped fight the fire. He assisted the other firefighters until a vehicle from the base took him back for a checkup and the many interviews to follow.

Meanwhile, back at "crisis control central," Ops and Maintenance struggled to find the mishap plan folder, write the Op Immediate message, make the required phone calls, impound the aircraft records, answer the increasing number of phone calls, and recall the Skipper and Safety through LA Center. All this with one autovon line that was usually busy.

The message was a little late, but the calls were made, and the other aircraft eventually returned. It was amazing how rapidly the local news was on line with live coverage. The ready room television gave more up-to-date information than was obtainable through the jammed phone lines. Everyone was relieved to know that there were no serious personnel casualties. The aircraft impacted between two light industrial buildings in Sorrento Valley. The Navy had been very lucky.

In reviewing the mishap, 20-20 hindsight focused on several lessons learned. Most important was the practice mishap drill we had gone through two months before. The safety officer went over the mishap plan folder step by step so that every duty officer could follow the procedures. None of the officers believed we could have a mishap because we had never had one. It is very easy to become complacent. In this case — and it will undoubtedly happen to someone else in another squadron — the safety officer was not there. Someone has to be trained to be ready to implement the mishap plan. Review the plan at least semiannually and have a surprise drill once in a while.

The Op Immediate message can be handwritten, and communications personnel can type it directly for transmission. We are so conditioned to have our messages rejected for minor errors that we think only perfectly typed messages can be sent. Hand writing the message will save several minutes.

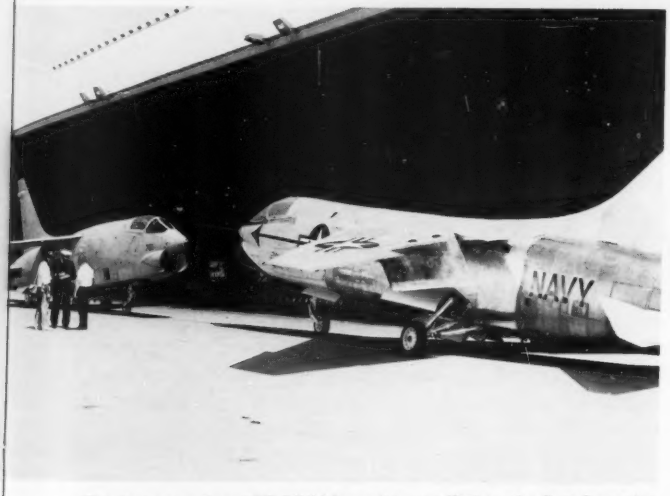
If deployed to an air station, use the local staff to assist you. We struggled with limited phone availability, while an admiral and his staff were right across the street. The staff can handle the peripherals and free you to handle the major details. Station safety, operations, medical, admin, public

PH3 David Casper

The final Crusader launch! Five cat officers do the honors aboard USS *America* for the F-8's final CQ in 1986. The Crusader is from VFP 206, the last 'Gator squadron.

affairs and other departments all have training and experience. Use them.

Update the squadron social roster at least quarterly. It is embarrassing not to have the proper names or numbers when you need them. Make sure the dusty mishap plan folder gets the updated list, too. The Naval Safety Center and the Safety School should be contacted to update important telephone numbers and points of contact. It helps to do this *before* you need the information. Most squadrons rely on the latest Safety School graduate to bring the folder up to speed, and a couple of years can slip by between graduates.



The last operational RF-8G(l.) faces its grandfather, the first Crusader prototype(r.) during ceremonies at NAF Washington, D.C., on 29 March commemorating the retirement of the F-8 and the disestablishment of VFP 206.

Finally, don't assume that because someone is told to do something, it will be done. In the middle of a crisis, the bubble is occasionally difficult to find and control. Tempers become short and emotions raw. Isolate yourself in a makeshift command center, then make a checklist that is easy to read and review. Delegate authority and tasks, but keep track of who is doing what. Your log will be an excellent pass down when the "experts" arrive to tell you what has or has not been done.

The first few minutes after a mishap can be a nightmare for everyone. However, a good safety program will keep all squadron personnel informed as to just what is expected of them. If any mishap can be called good, then perhaps this "Crusader crunch" was beneficial, because it reminded us just how close to the edge our operations are. We must constantly be responsible to ourselves, our shipmates and to the many civilians around whom we operate every day.

LCdr. Cotton flew A-7A/Es with VA 93 in the USS *Midway* from 1975 through 1980. He was the operations officer for VFP 206 and is a copilot for Eastern Airlines.

Lt. Manny Bashakes (right), Ltjg. Mark McCullough (left).

Lt. Manny Bashakes
Ltjg. Mark McCullough
VAW 120

While working the FCLP pattern at NALF Fentress, Lt. Bashakes and his replacement pilot, Ltjg. McCullough, noticed a hydraulic low-level caution light illuminate as they were passing through the 90-degree position of their approach. There were no secondary indications of hydraulic malfunction or impending failure. Knowing that it would take hours to get the hydraulic system serviced at Fentress, and with home base a mere 10-minute flight away, the temptation to RTB was great. Instead, in strict accordance with NATOPS procedures, the crew landed immediately to check it out. After clearing the duty runway, Lt. Bashakes stopped the aircraft and started aft to check the hydraulic reservoir when he discovered a raging fire in the forward equipment compartment. After calling for fire fighting assistance and shutting down both engines, which halted the blow-torch effect on the fire, the crew abandoned the aircraft. The fire extinguished with loss of hydraulic pressure.

Caution lights illuminating without immediate secondary indications may sometimes be a serious situation disguised innocently. Lt. Bashakes refused to allow his judgment to be clouded even though he had seen caution lights "cry wolf" before.

Had the crew not landed as soon as possible, as per NATOPS, they

BRAVO ZULU

would have, in all probability, lost the aircraft over Virginia Beach. This story is a good example of why following NATOPS and ignoring a possible logistics/maintenance hassle can save aircraft. Too many times pilots delay required NATOPS action to save maintenance work or "save face." — Ed.

LCdr. David B. Martin
VA 86

After being cleared for a left downwind following a routine touch-and-go, LCdr. Martin noted a pitch AFCS light on the advisory panel. Instinctively disconnecting the AFCS with the control stick paddle switch, LCdr. Martin found himself in an uncommanded right roll at 200 feet AGL. Approaching 90 degrees angle-of-bank, he reengaged the AFCS with the Control Aug switch, regaining enough aileron authority to counter the roll and enter a left downwind. He immediately declared an emergency and announced that he intended to make an arrestment. Approximately 120 degrees through the approach turn, all aileron authority was lost, with no associated AFCS lights. Using rudder alone, LCdr. Martin successfully completed his approach and short field arrestment. Maintenance action revealed that the roll-feel isolation actuator rod end had separated from the actuator piston in such a way that it disabled aileron control. ◄

27

Continued

The Real T

By LCdr. Peter Lento

. . . We fly into something straight out of Dante's Inferno.

At least three ships are rushing into

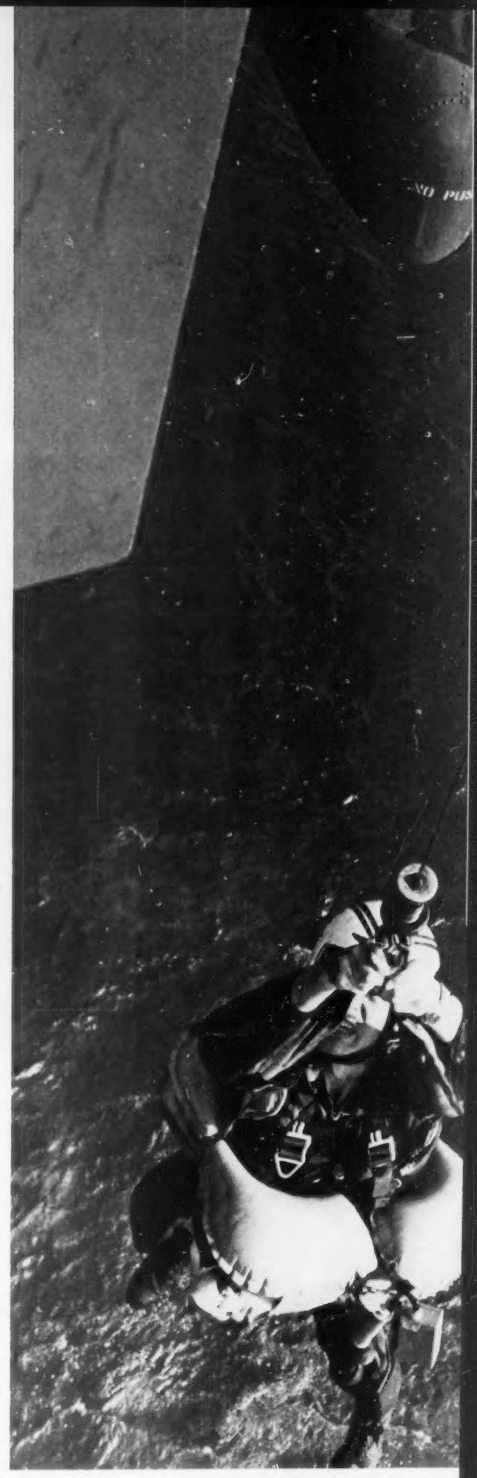
the area, five or six aircraft are orbiting overhead,

and the parachute flares are drifting down

in two places. . .

YOU are highly trained and confident when you get the call that someone is in the water. Flying to the exact location of the crash, you spot the survivor and mark his position with a smoke float. A quick turn downwind, two more smokes to establish the lineup line, a flawless 90/270 turn and you are perfectly lined up on final. Down the glide slope you go, all equipment working perfectly, and the half moon giving you an excellent horizon. In a stable hover, the horse collar goes down to the survivor. He hooks on with his D-ring; you hoist him up and return to mother. Naturally they

Thing



are waiting for you with open arms and air medals for all involved.

Just as you always imagined it, right? Not quite. Here's what **really** happened.

We were on the second leg of an all-night SSSC hop. Our mission was to help keep the back side of a Mediterranean NGFS (naval gunfire support) range clear. There was no moon and a heavy overcast mixed with a surface haze, which eliminated the horizon and reduced visibility to less than five miles. At about 0500, the sky began to light up with parachute flares. Starshells for the gun shoot, we thought. Real pretty, but they sure messed up our night vision. Two minutes later, we were told to vector 140 at nine NM. There was a plane in the water!

Flying inbound, we ran through a quick pre-rescue checklist. "Boy, I wish both crewmen were flying tonight," I thought. What frequency is the SAR being conducted on? Who is the on-scene-commander? Nobody knows. Well, we're getting close to the action, so let's go, people! We got the frequency, dialed it in and found 15 people all talking at once. Seems to be a Marine bird running the show. "133, this is Greenchecker 236, I'm rigged for rescue. Can I help?" Whoever was up there was good. He cleared us into the area, told everybody else to give us room and said he didn't know how many were in the water.

We flew into something straight out of Dante's Inferno. At least three ships were rushing into the area, five or six aircraft were orbiting overhead, and parachute flares were drifting down in at least two places.

"How do I get in there without getting creamed with a flare?" OK, aircraft in the water, so we don't dare put smokes in the water, too much danger of fire. True wind doesn't look like what was briefed; take a swag at it. Next trick is to find the survivors. Our crewman spots a 15-man life raft in the water. "Is it a 53? Where do we put them?"

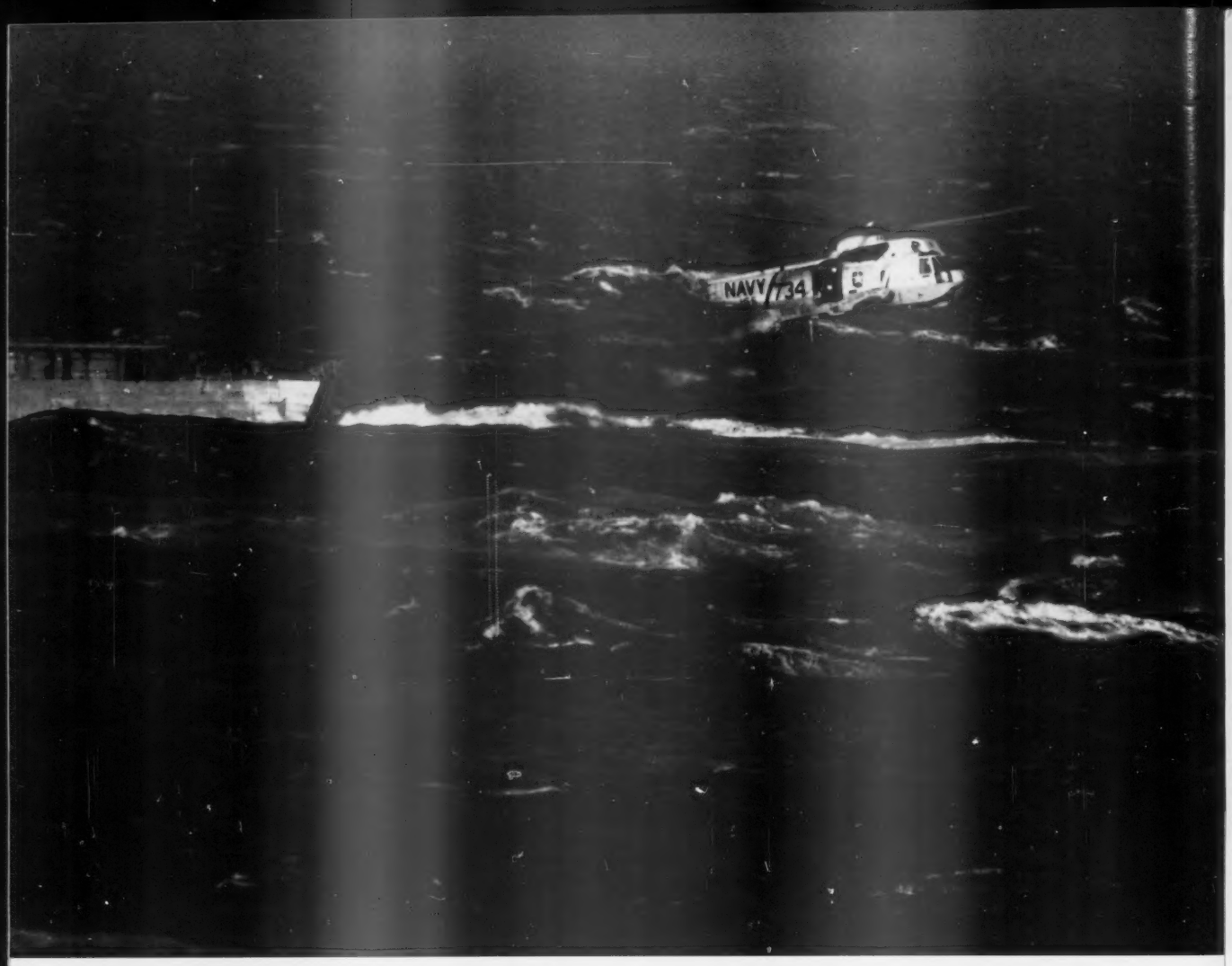
"Sir, there's a man hanging onto the raft at our 3 o'clock; I see the strobe on his helmet."

"Thank God for that all-white helmet directive. It really stands out." We mark on top to be sure, and then turn downwind to start the approach, electing to do a race track instead of the standard 90/270 turn. The approach becomes manual when the doppler goes into memory. We arrive on top, high but controllable. Then the doppler goes into memory again. Simultaneously, the parachute flare goes out, and the wind (which we have misjudged) swings the tail. "Let's not join this guy in the water! Wave it off."

Back around again. USS *Ship* has arrived and is driving right down our approach course. OK, we take it a little wide and come in slightly off the wind. The doppler is working consistently now, so the approach goes by the numbers. A little too much nose up on final — she climbs to 100 feet. Punch the RADALT hold off; we don't want to develop any big control movements. Hoist is going down; let's do the same — 80 feet, 70 feet, 60 feet. Let's hold it here, less spray. Gauges are good.

Damn, another flare off to our left; those things are blinding. What's that on the right? The ship! Looks like he's going to park it under the rotor! Crewman says he can't see the survivor; OK, turn on the landing light and direct it for him. Good, the horse collar is in the water. He keeps telling me that I'm drifting right, but the doppler shows I'm in a steady hover. Must be the rotor wash blowing him.

Continued



"Sir, I dragged the horse collar across him twice now, and either he doesn't want to get into it or he can't see it!" What now? I don't have anybody to put in the water to help him. Blast! The flare went out; it is really black out here! What's that on the right? The ship really got her boat in the water quickly. Those idiots are going to drive right under me! Well, they've got swimmers on board. Back up, raise the hoist and keep your light on the scene; it'll help. Ah, they've got him; now let's see who else is in the water.

There are a number of lessons to be learned from this evolution:

- We train for SAR the same way we train for ASW: one aircraft all alone doing its thing. This is rarely the case. A crash in a battle group creates a swarm of assets converging on the datum to help. This is comforting to the folks in the water but really complicates the rescue. An on-scene commander must be designated and start directing traffic instantly.
- Many helos do not routinely carry chemical or electric light markers, yet, in many rescues at sea, there is the danger of igniting spilled fuel, so we cannot use MK-25 smoke markers.
- Crewmen do not get enough realistic SAR training. They should practice putting the horse collar in the water during training flights to learn how to control it. SAR bags should include chemical lights to attach to the hook at night.
- The all-white helmet directive is one of the best ideas in years; yet, I see too many all-red or all-black helmets when I stop at jet bases. We can't rescue you if we can't see you. ◄

LCdr. Lento is training officer and OIC Detachment Six, HSL 34, Norfolk, Va. He had previous tours with the Pensacola SAR Detachment, HC 16 and HSL 30. He has over 2,000 hours in the H-2.

Attitudes

By LCdr. Tom Witowski

No one can make you become safety-conscious unless you want it to happen.

AS I sat around my BOQ room the night before my first safety stand-down as squadron safety officer, I tried to think of something profound to say that would raise the squadron's level of safety awareness to a fever pitch. This is not an easy task. Many safety lectures that I have heard were about as exciting as watching paint peel.

Safety officers would get up and quote statistics ad nauseam and tell you how if you weren't "safe," you were going to die. Well, no kidding! It didn't take a genius to figure that out.

How does one get "safe"? One way, I guess, is by edict of Rocket One: "You *will* be safe when flying my aircraft." This usually results in lip service and the burning question, "Who, me? How does Charlie Oscar think I got these 500 flight hours in my multimillion dollar super-sophisticated aircraft — out of a Wheaties box?"

Another way is through education. We take in information by reading, viewing or hearing it, and we draw our own conclusions. Perhaps even the realization that bad judgment yields dire consequences.

Still another way is through observing good examples of safety conscious people: maybe it will rub off. However, I have worked with four safety officers in the past several years, and each ended up with an arm, leg or foot in a cast from some careless act. Frankly that worried me.

Then I asked myself, "What's my attitude towards safety?" The dictionary defines attitude as a manner or disposition, a feeling, a way of looking at things, a mental outlook, a frame of reference or a state of mind.

A state of mind — that's it! All those lectures, facts, and good examples don't increase our awareness unless we have the right attitude towards safety. We must continuously and consciously promote safety.

Psychologists tell us that no one individual can change another person's attitude towards anything unless that person wants to change. No one can *make* you quit smoking, go on a diet, give up fast cars and women, or become safety-conscious despite all the nagging and facts presented — unless you *want* it to happen. That "wanting" is something that occurs deep inside each person when he decides for himself that he is mentally determined to alter his routine. It's commonly referred to as an "attitude adjustment."

The daily goal of every safety officer is to help you to improve your attitude concerning safety. He does this through education and example. You must do the rest. Safety awareness is an *attitude*, but like anything else, you have to *want* it.

LCdr. Witowski is safety officer of VAQ 33 at Key West, Fla., and has more than 1,500 hours in A-6s, A-4s, A-3s and F-4s.

LETTERS

Re: Helo Safety During Unrep (Anymouse, July '86)

FPO, Miami, Fla. — Playitsafemouse could have discussed more unsafe conditions during helo ops and unrep evolutions. There are undoubtedly many out there waiting for us, like the one that tried to get my crew and our frigate.

Not long ago, we were launched on a zero dark 30 SAR mission from our ship. One hot pit, an unscheduled parts run, much coffee and six hours later, we finally received permission to land our now heavily loaded "tactical" helo.

While homeplate was busy manning up flight quarters, the word was passed to man the unrep detail. No problem, right? We soon became aware of how much fun a "no problem" event can be.

Homeplate found the wind, and a green deck was given for a very dark, night RAST recovery. We made our approach and stabilized in a high hover over the deck awaiting the "cable tension" call from the LSO.

That's when we saw the light! It came from four very bright unrep spotlights facing aft. They were also unwittingly placed at about eye level with the pilot of a helo in a hover over the flight deck.

The HAC was initially distracted and proceeded to a lower hover in an attempt to block the lights with deck structures mounted above the helo hangars. This made matters worse, as we were now directly at eye level with those same lights we were trying to avoid.

The much-awaited call came from the LSO, and not a moment to soon. He was unaware of the "no problem" event taking place only 20 feet above him.

The HAC executed an excellent trap, despite being temporarily blinded by the spotlights. After securing the cabin for shutdown, the aircrewman quickly headed topside and engaged in a very colorful discussion concerning night flight ops and bright lights with the senior chief in charge of the unrep station.

When tempers and tensions were allowed to dissipate, sound thinking followed.

What happened? Everyone was doing his assigned task, but with a lack of communication and coordination between the bridge, CIC, unrep station, LSO and the aircraft.

Action taken: This "no problem" event has been addressed with all hands concerned.

AW1 Scott A. Gobar
USS *Nicholas* (FFG 47)

Re: True Or Magnetic North (July '86)

FPO New York, N.Y. — This article contained the two usual mnemonics "East is least but west is best." These apply only if you know whether they go from magnetic or from true headings. A simple and efficient mnemonic is CADET: Compass to true add east. This and the corollaries hold good for all applications of variation:

Compass to true subtract west variation.
True to compass add west variation.
True to compass subtract east variation.

If you then need a more precise compass heading that takes both deviation and variation into account, the following mnemonics apply:

"Cadets don't meet virgins twice," for compass deviation magnetic variation true. Reversed, it becomes "True virgins make dull company."

These rules are equally valid for applying grivation (using isogrives) doing grid navigation. If the female P-3 population is not content with such a sexist mnemonic, may I suggest "Can dead men vote twice at elections?" for compass deviation mag variation true add east. This becomes "True virgins make dull company at weddings."

I'm sure there are many more — the user just chooses those that can be remembered most easily. I submit, however, that they are all better than "west is best," which it is clearly not!

Cdr. A.K. Tatman, RN
N342B Commander Second Fleet

Operational Necessity

Washington, D.C. — Thumbing through OPNAV Instruction 3710.7L, you will find a four-line paragraph on page 1-7 that is very important to naval aviation safety. It is Paragraph 39 and reads:

"OPERATIONAL NECESSITY: A mission associated with war or peacetime operations in which the consequences of an action justify accepting the risk of loss of aircraft and crew."

The term "operational necessity" can be misunderstood. It could be interpreted to mean "made necessary by operations" — a dangerous interpretation. The definition is specific in stipulating that the mission must be so important that the loss of aircraft or aircrew can be accepted in an effort to get the job done. In today's Navy, most missions are made necessary by operational commitments. **Very few** satisfy the definition of operational necessity.

In the helicopter community, for example, in some situations it is only possible to transfer passengers at night because the transferring ships would be out of range by daylight. The person being transferred may be on emergency leave or perhaps someone who is going to repair a major combat system on the receiving ship. The transfer at night would seem to be necessary because the operations of the ships involved preclude other options.

Such missions, however, do not satisfy the criteria of the definition of operational necessity because the risk of loss of aircraft and crew is not justified by the urgency of the mission.

On the other hand, some missions during peacetime may satisfy the requirements of the definition. It may be necessary to risk the lives of a SAR aircraft and crew in an effort to save others. On rare occasions in peacetime, the operational commander may determine that a mission is of such high national significance that the potential loss of the aircraft and crew is justified.

The aircraft commander is responsible for knowing which missions he or she can normally be expected to accomplish and which can only be completed in cases of operational necessity. It is also the aircraft commander's responsibility to ensure that the tasking authority recognizes when an assigned mission places the aircraft and crew in unnecessary jeopardy.

LCdr. Paul G. Sherland
Office of the Assistant Secretary
of the Navy (Manpower &
Reserve Affairs)
The Pentagon

Re: The Naval Air Reserve Reaches 70 (Aug '86)

NAS Moffett Field, Calif. — You used a picture on page 6 that could lead to bad habits. It showed three mechanics with an open-end wrench being used as a "cheater bar" on a ratchet while working on an engine; that's a big no-no.

I am sure this was an oversight. I call it to your attention because I know you regard "by the book" maintenance practices very highly.

ADC T.P. Allhoff
VP 31 FRAMP 150

• You're right. The proper procedure is to use an extended breaker bar. Thanks.

IF IT ISN'T AIR, IT DOESN'T BELONG IN HERE!

Poster idea contributed by AMS2 J.C. Hickman and AT3 L.A. Blakely, VA 95

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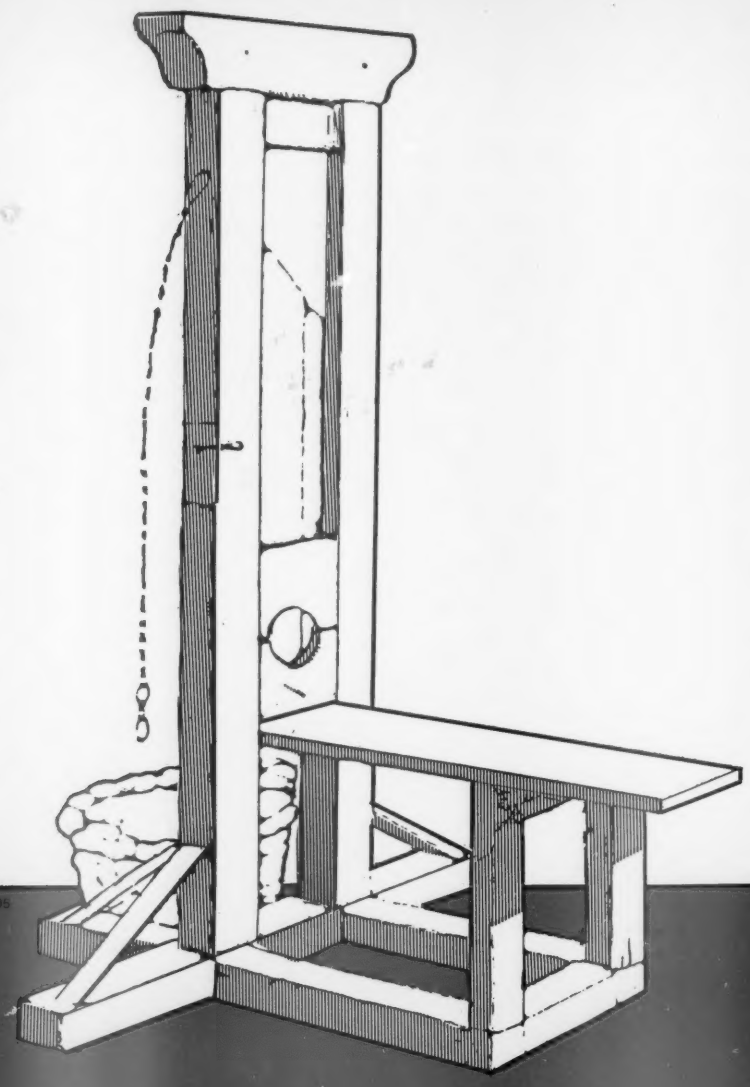

Poster idea contributed by Lt. M.D. Bu[illegible], VA 95

The only difference?
One moves faster.